

STANFORD UNIVERSITY

STANFORD, CALIFORNIA

DEPARTMENT OF GENETICS

School of Medicine

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Dear Garfield:

I am sorry to have been so tardy in replying to yours of the 9th; you are quite right in judging how hectic times have been lately, but not for quite the reasons you suggested.

The camera-mask arrangement for copying the references looks quite clever—clearly, some time should be devoted to perfecting this type of technique. You are obviously going to have to rely (ultimately) on some procedure for mechanical sorting— it might do well to encode the masks with some system like ERMA (e.g. as on the enclosed check form) that can be easily handled mechanically. Of course this will not be cheap except for your ultimate and complete design.

I strongly disagree with the addition of ~~interpretive~~ interpretive material, even the classification of the type of reference. When you do have a simple citation index once set up, I agree that this represents ~~an~~ a valid and interesting type of research. However, if this is done I think you should start from a CI, and then sample a group of writers, asking them to classify (retrospectively) their own references. This comment may reflect my own bias that CI at present needs no research to be an extremely useful tool, ~~including its~~ its uses including functional analysis of literature citation.

I also disagree that you should attempt any subject classification, e.g., genetics, on the grounds that this defeats the main advantageous purposes of CI, namely a mechanical system of classification. If you start analysing the references, you might as well start trying to analyse the content of the paper, and you are back to abstracts.

If you stick to your guns on the original principles of CI, I am sure you will find it widely used as a research tool, and that further ~~perfections~~ will evolve. What we need more than anything else is to get it going. If it is not yet practical to publish a complete ~~EXHIBIT~~ CI for all of science, then your proposal 3 is a reasonable ~~starting~~ introduction— (Would it be worthwhile to copy every citation, then sort the cards to pull out the general science and save the rest for later use?) If you have to sell this program to a particular study section or discipline, a reasonable extension is to add citations to a specified series of journals (e.g. ~~Genetics~~ Genetics and Am J Hum Genetics — this would probably pull in almost every article in outlying journals that had a clear and direct reference to genetic problems.) But I hope that, say, the Genetics panels will be willing to support your more general program first, without demanding such a concession. Some study section has to back it, and it might as well be genetical on the basis of scientific commonsense rather than a narrow concern. I feel a good general CI will be of greater value of Genetics than a too specialized run that sticks too closely to the discipline. (Other fields will benefit too, but that is no demerit.)

I know that you yourself will be keener to do the kind of analysis you're discussing ~~that~~ than just to go ahead with CI as is. But I think there will be much more support for you if you can demonstrate what CI can do.

The idea of a separate CI for each journal is intriguing: it will certainly increase the possibility of many individual subscriptions, and is as sensible a way of organising the production as any. It cleverly provides for the gradual increase in the coverage of CI, though I am sure this will increase exponentially.

You can be sure that if you set up CI for citations to Science, Nature etc. that many authors will then take care to include more references to these journals which will help to ensure better coverage of the literature.

Briefly then, I would strongly urge the adoption of your proposal 3 (perhaps now confined to CC journals) on a field of 5 or ten source journals, ~~preferably including~~ like Science, Nature, PNAS.... I would defer extending the field to specialty journals like Genetics until we can judge the utility of this first result. However, there is nothing strongly against doing this now.

I am sorry this is such a disorganized letter; your own was rather complex, and I may not have understood it all on the first 2 or 3 readings. My 3d and 4th paragraphs may be beating a dead horse, if the suggestions to which they refer are future intentions, not immediate proposals. If I take time to patch this letter up, it will be another month before you see it.

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My main ~~XXXXXXXX~~, as you know, is to encourage you to get on with the work as simply and straightforwardly as possible. If it works out as well as it must, you should have little concern for enthusiastic support for your own research using CI.

Yours sincerely,


Joshua Lederberg

PS: I have to check what day CC comes in to the ~~XXXX~~ dean's office here. I know there has been great interest, and you should be getting a sizable subscription order soon. We have a little trouble working out how to do the bookkeeping on billing the individual subscribers, who may have different accounts to pay from.

The reprint you asked for is on the way.

My Stockholm lecture will appear in Science in due course; I did not give it until last May, while Beadle and Tatum discharged their obligation during the festival last December. The article in Angew. Chemie was the same piece; someone there translated it for me. I will save a reprint for you -- did you want the bibliography now for your own purposes?